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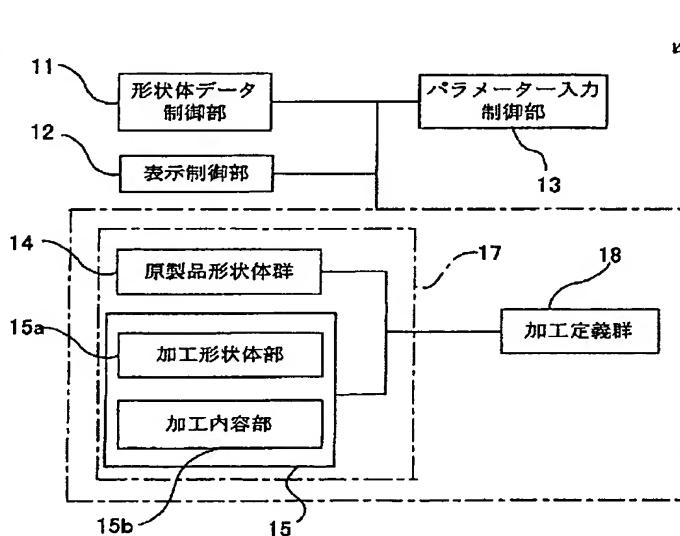
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 (81) 指定国 (国内): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,

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(54) Title: CAD SYSTEM, PROGRAM FOR RUNNING THE SYSTEM, AND RECORDING MEDIUM HAVING THE PROGRAM RECORDED THEREIN

(54) 発明の名称: CADシステム並びにこれを実行するためのプログラム及びこのプログラムを記録した記録媒体



11..SHAPE BODY DATA CONTROL PART  
 12..DISPLAY CONTROL PART  
 13..PARAMETER INPUT CONTROL PART  
 14..ORIGINAL PRODUCT SHAPE BODY GROUP  
 15a..MACHINED SHAPE BODY PART  
 15b..MACHINING CONTENTS PART  
 18..MACHINING DEFINITION GROUP

(57) Abstract: A CAD system capable of generating the shape body of a machined portion and the contents of machining by automatically recognizing the machined portion by utilizing CAD data on product shape only, comprising a machining information group (15) having a machined shape body part (15a) storing the portion where material is removed by machining as the shape body for each machining and a machining contents part (15b) storing tools and parameters as information on the contents of machining in connection with the shape body and a machining definition group (18) defining a plurality of machining types beforehand.

WO 2004/038522 A1

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Fig.1

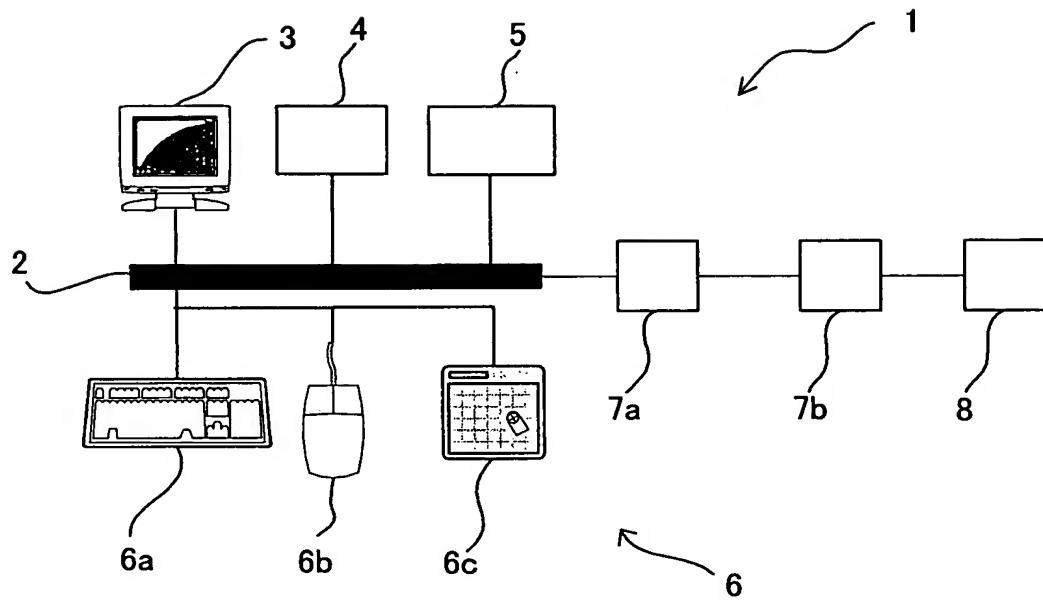


Fig.2

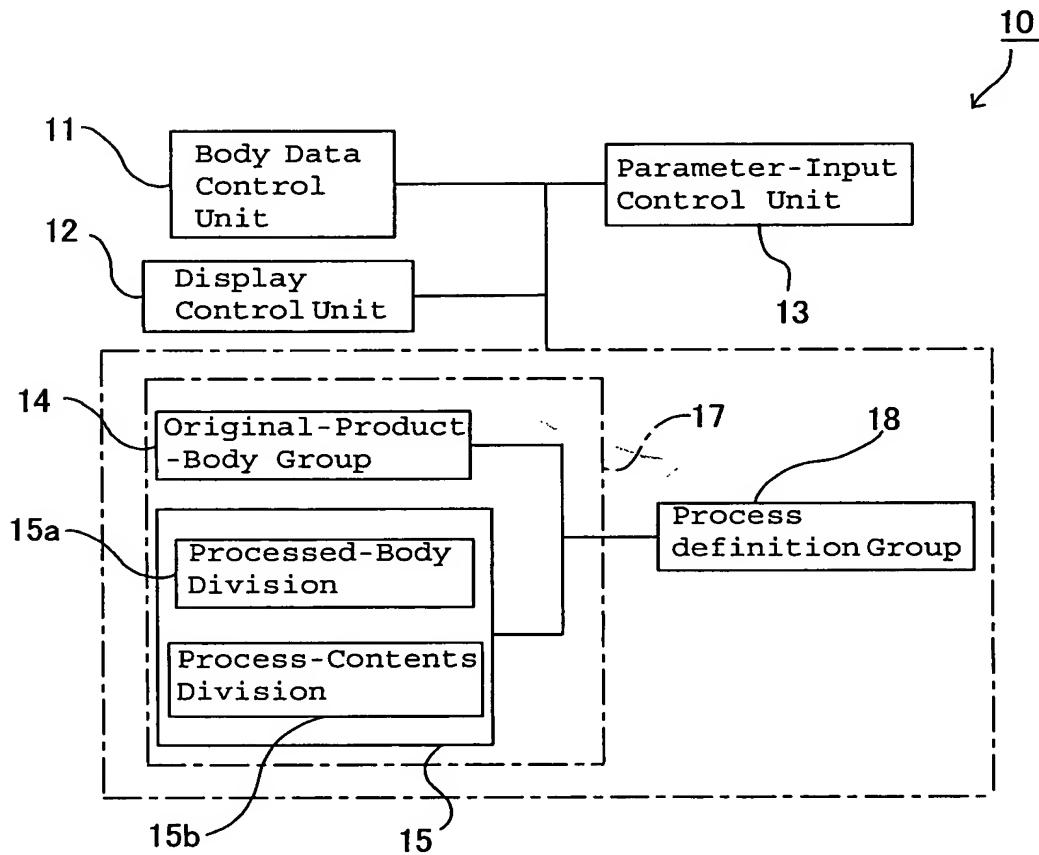


Fig.3

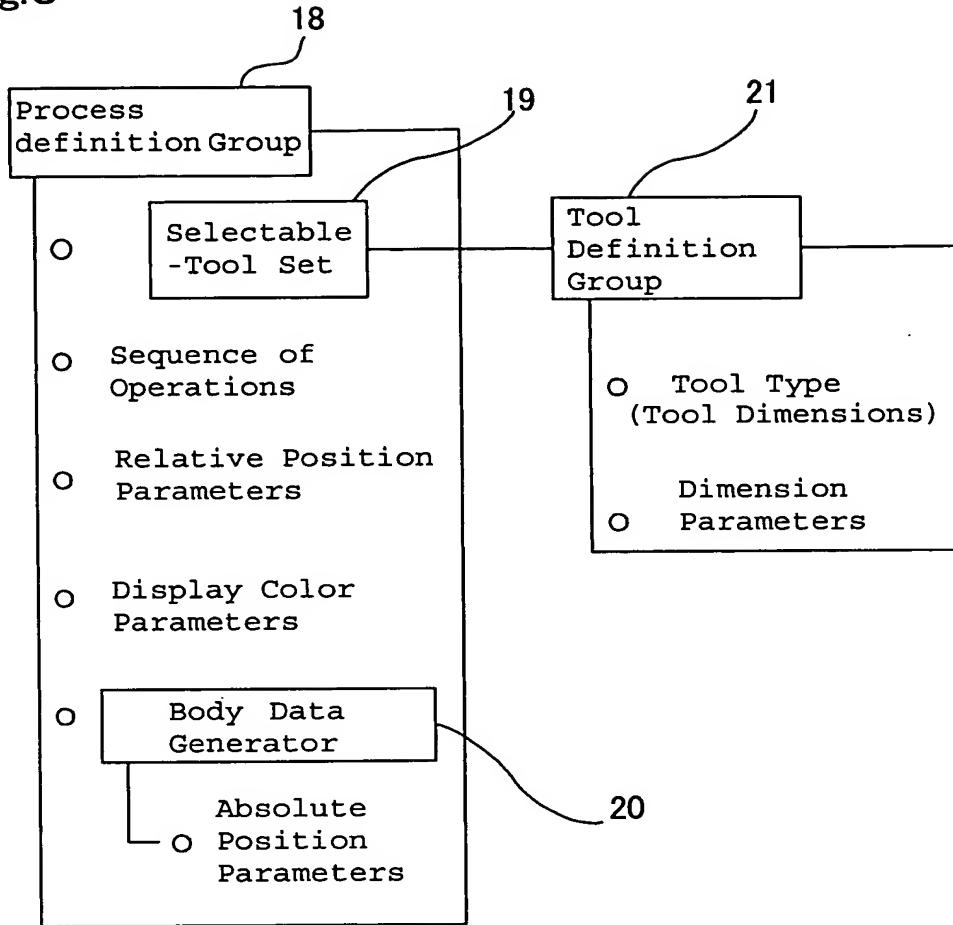


Fig.4

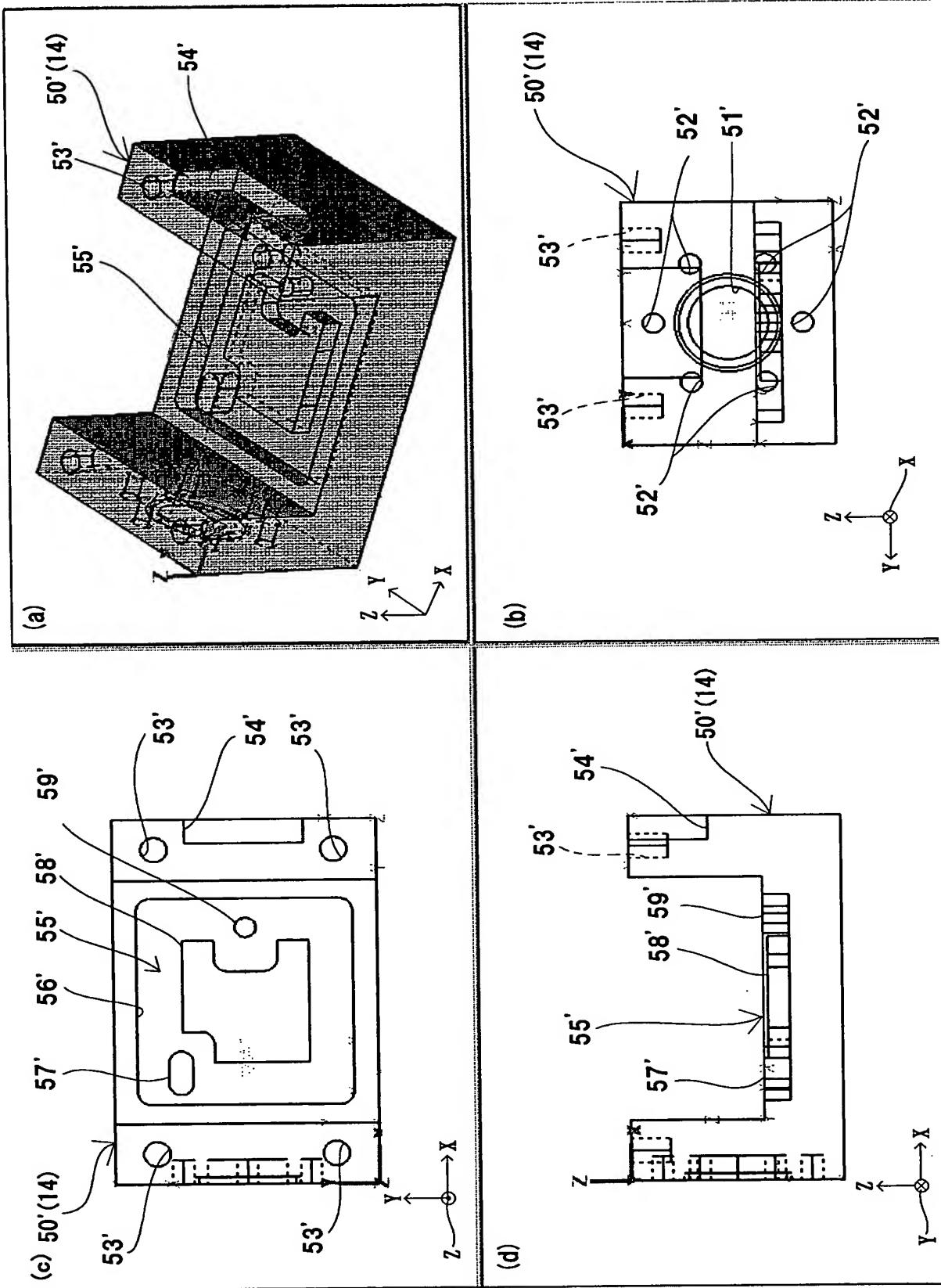
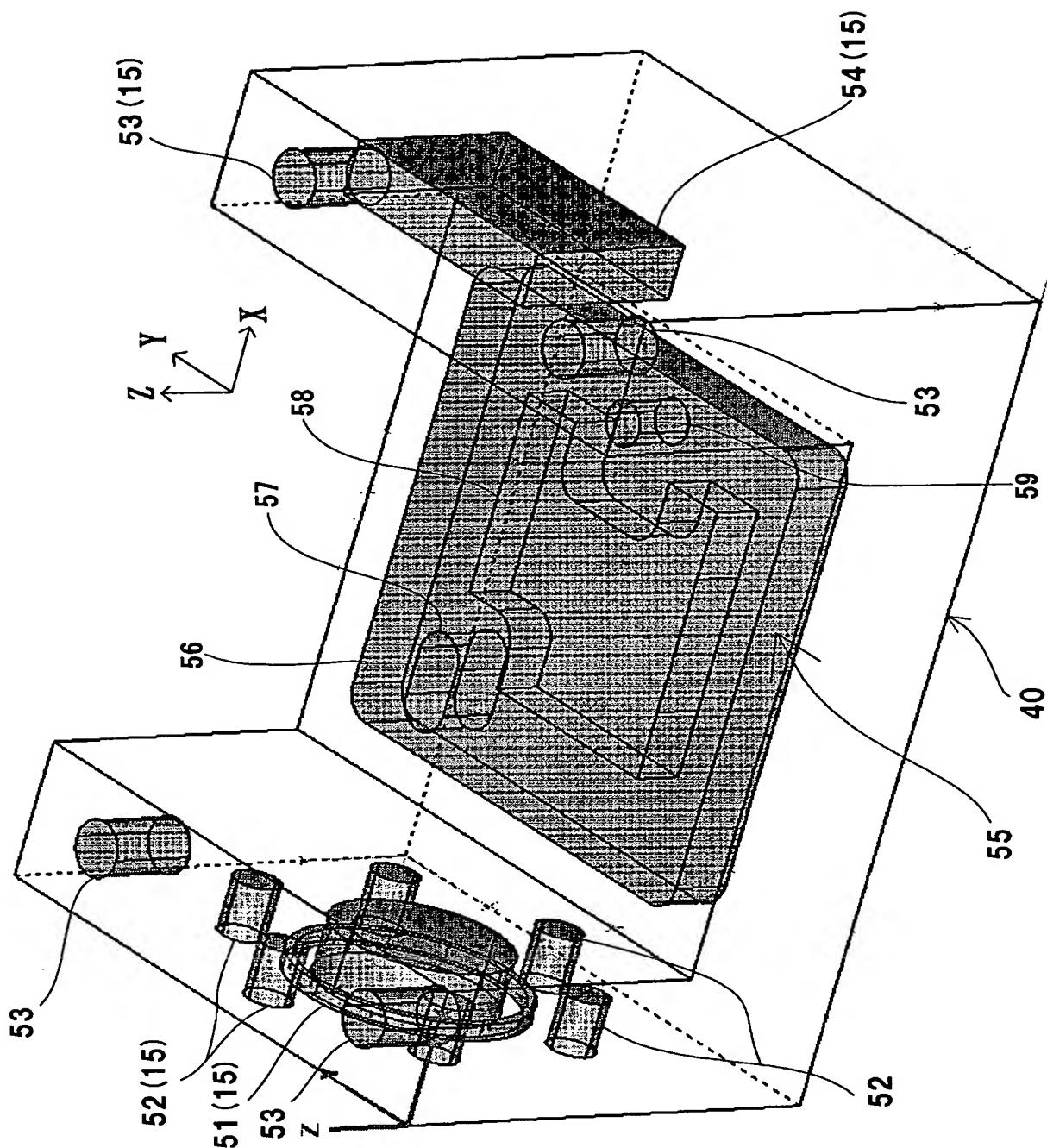


Fig.5

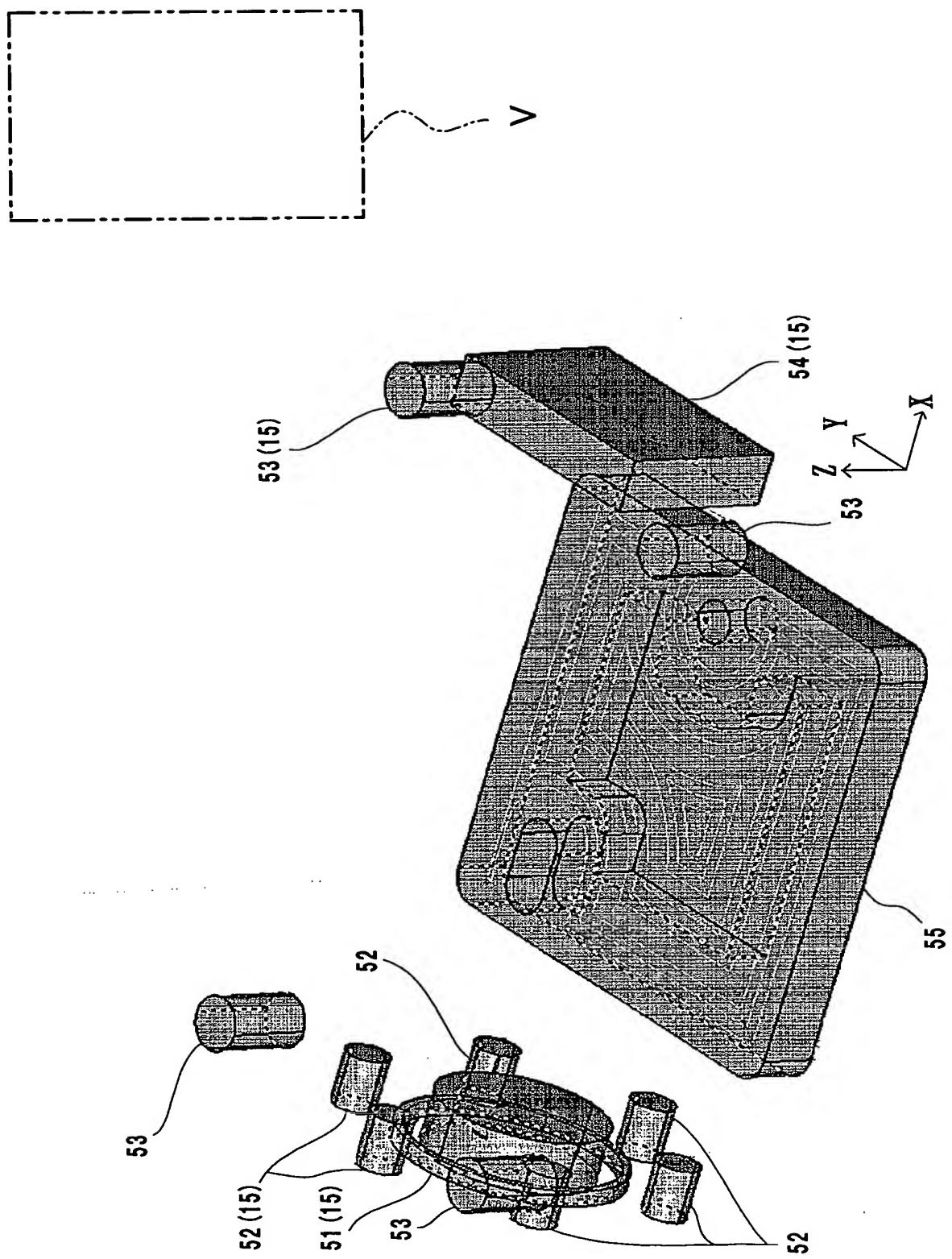


10/532501

103083

5/10

Fig.6



6/10

Fig. 7

70

Tool List				
No	Tool Name	Diameter	Surface	Machining No.
1	Center drill	3,000	0	1
2	Center drill	3,000	0	2
3	Center drill	3,000	2	4
4	Center drill	3,000	2	5
5	Drill (High speed)	8,000	2	4
6	Drill (High speed)	8,000	2	5
7	Drill (High speed)	9,000	0	1
8	Drill (High speed)	10,000	0	2
9	Drill (High speed)	10,000	0	2
10	Drill (High speed)	20,000	2	5
11	Mill drill	9,500	0	1
12	rough-mil	10,000	0	2
13	rough-mil	10,000	0	2
14	rough-mil	10,000	0	2
15	rough-mil	10,000	0	2

Tool  Surface  Machin- ▲ ▼ Delete Register

Type of machining	Pocket making
Sub Number	0
Step	50,000
Relief	50,000
Machining Depth	1,667
Approach speed	100,000
Cutting speed	100,000
Offset direction	Left <span style="border: 1px solid black; padding: 2px;">▼</span>
User definition	

Keep display  Display tools

103083

7/10

Fig.8

73

	Tool Name	Diameter	Machining diameter	Machining depth
1	Center drill	3,000	3,000	3,000
2	Drill(Highspeed)	9,000	9,000	17,600
3	Mill drill	9,500	9,500	15,000
4	Reamer(Highspeed)	10,000	10,000	15,000

OK

Cancel

Add

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Fig.9

(a)

(b)

(c)

(d)

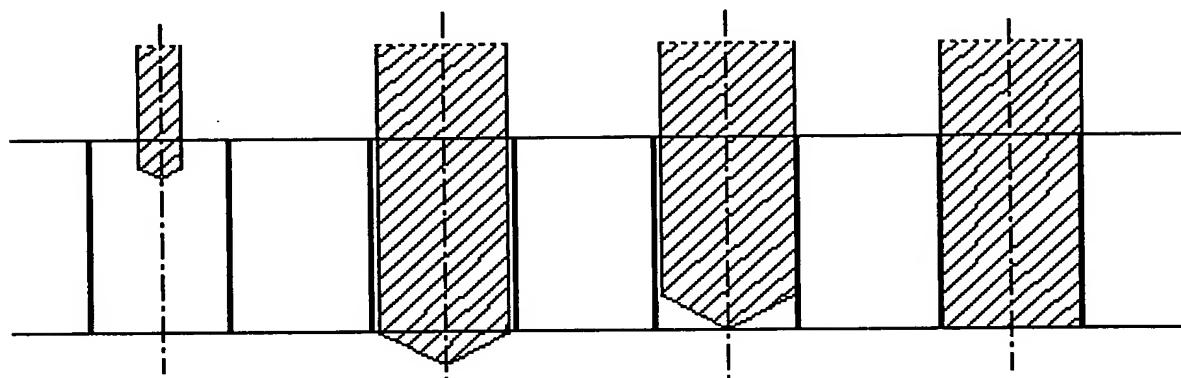


Fig.10

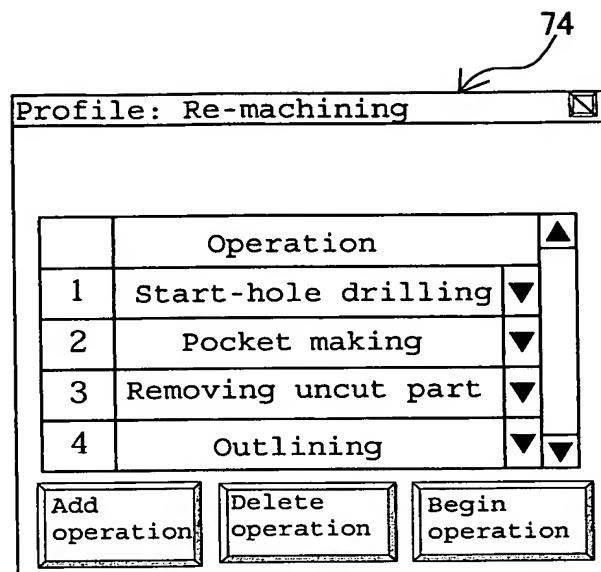
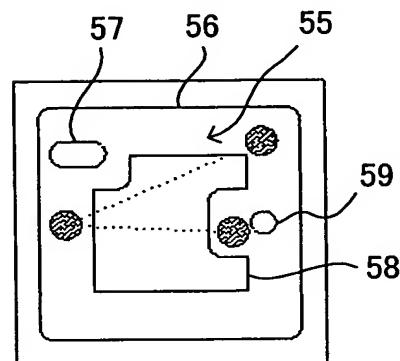


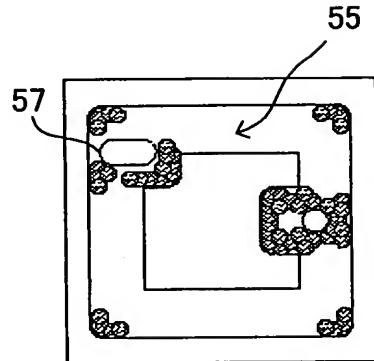
Fig.11

(a)



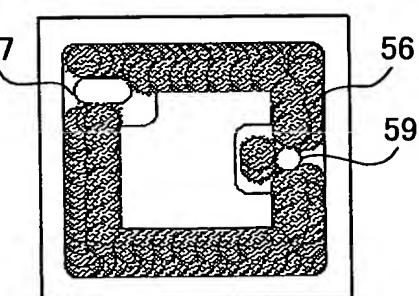
Start-hole drilling

(c)



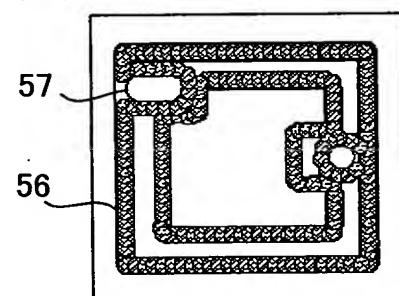
Removing uncut part

(b)



Pocket making

(d)



Outlining

Fig. 12

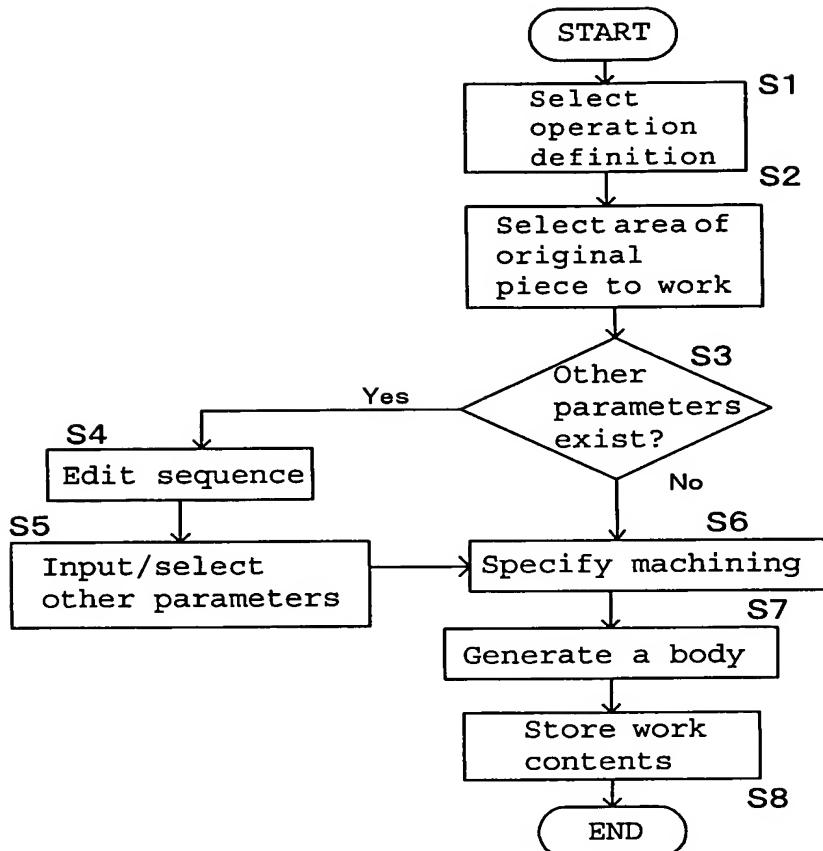
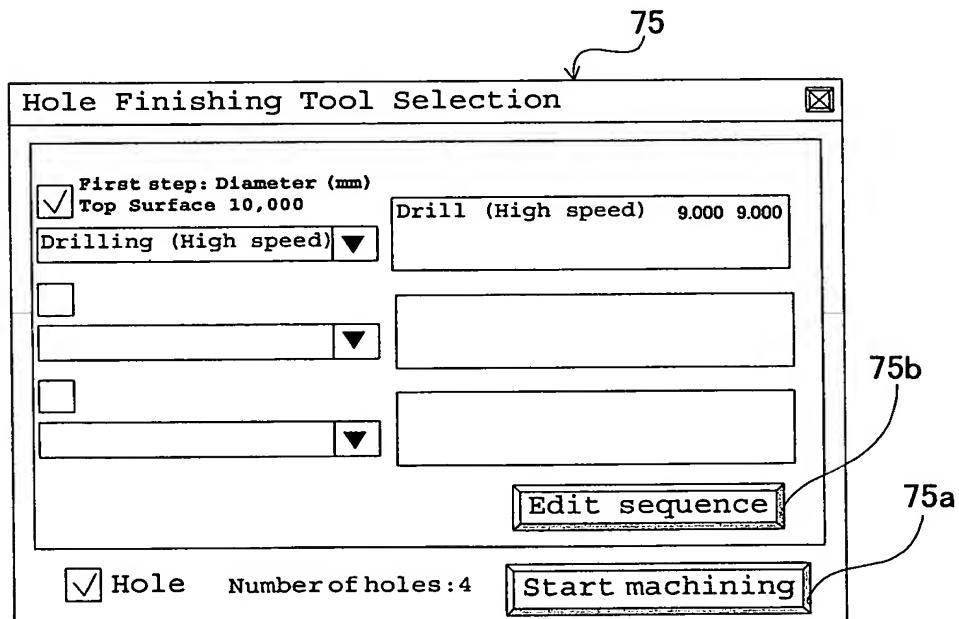


Fig. 13



103083

10/532501

10/10

Fig.14

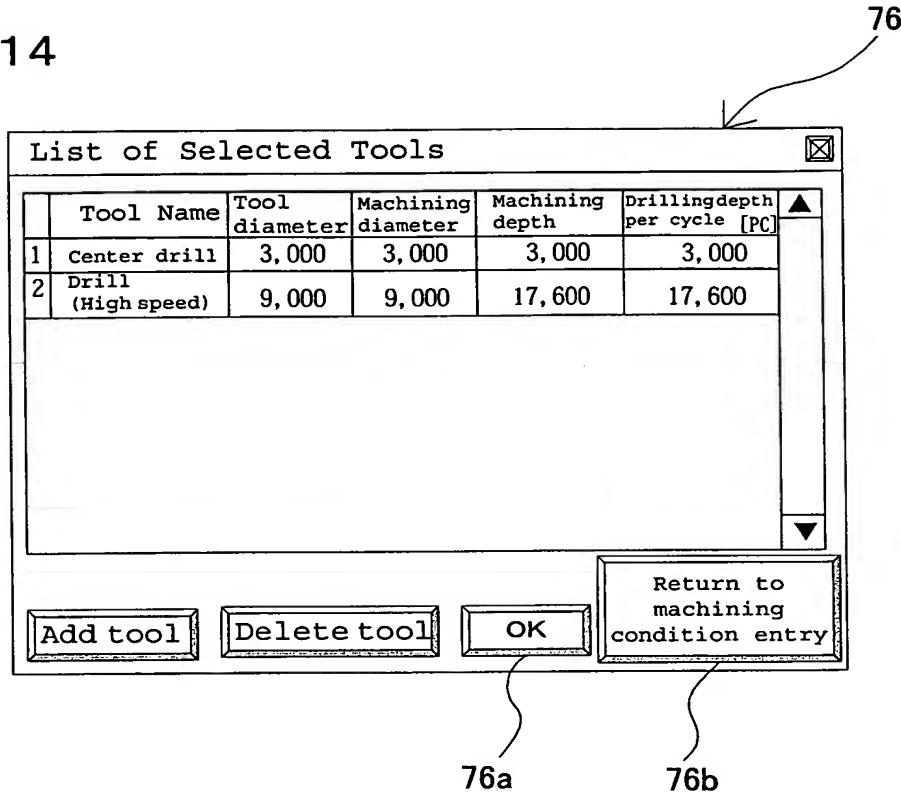
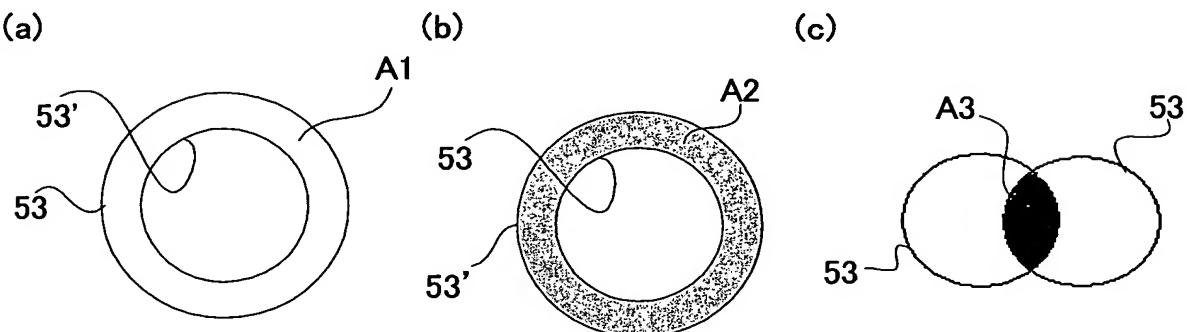


Fig.15



## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/JP03/13524A. CLASSIFICATION OF SUBJECT MATTER  
Int.Cl' G05B19/4097, B23Q15/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
Int.Cl' G05B19/18-19/46, B23Q15/00-15/28Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
Jitsuyo Shinan Koho 1922-1996 Toroku Jitsuyo Shinan Koho 1994-2003  
Kokai Jitsuyo Shinan Koho 1971-2003

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	JP 11-129141 A (Toyota Motor Corp.), 18 May, 1999 (18.05.99), Par. Nos. [0015] to [0017], [0029] to [0045]; Fig. 2 (Family: none)	1,5,6,11,12 2-4,7-10
Y	JP 2001-62676 A (Canon Inc.), 13 March, 2001 (13.03.01), Par. Nos. [0032] to [0035]; Figs. 4 to 10 (Family: none)	2-4,9,10
Y	JP 11-235646 A (Toyota Central Research And Development Laboratories, Inc.), 31 August, 1999 (31.08.99), Par. Nos. [0052] to [0054]; Figs. 4 to 8 (Family: none)	3,4

 Further documents are listed in the continuation of Box C.  See patent family annex.

"A"	Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E"	earlier document but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 08 December, 2003 (08.12.03)	Date of mailing of the international search report 24 December, 2003 (24.12.03)
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Name and mailing address of the ISA/ Japanese Patent Office	Authorized officer
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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP03/13524

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 1-233617 A (Fuji Xerox Co., Ltd.), 19 September, 1989 (19.09.89), Page 1; lower right column, lines 10 to 16; Fig. 4 (Family: none)	7, 8
A	JP 2002-116807 A (Toyota Motor Corp.), 19 April, 2002 (19.04.02), Full text; all drawings (Family: none)	1-12